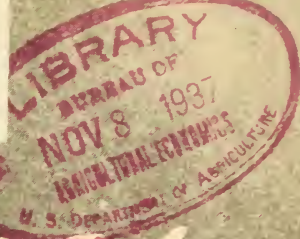


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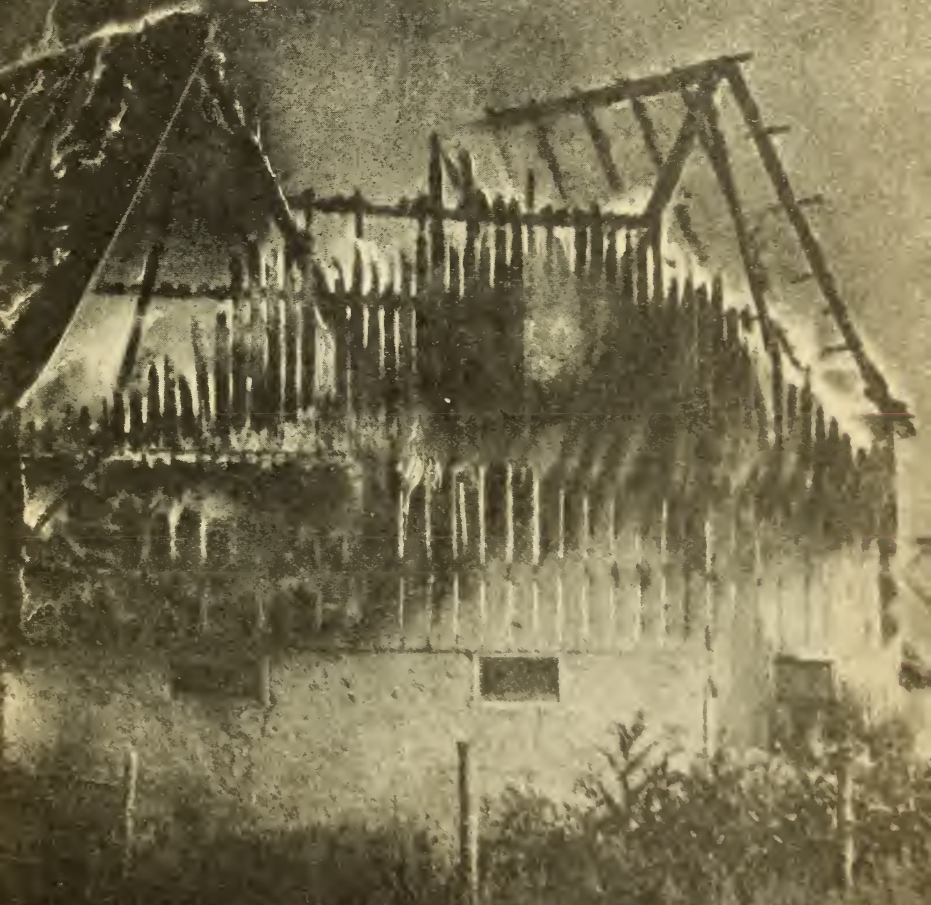
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Fires on **Farms**



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U.S. DEPARTMENT of AGRICULTURE
Bureau of Chemistry and Soils

FIRES ON FARMS

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Losses From Farm Fires

A farm fire seldom attracts attention outside the locality in which it occurs. It is but a single, isolated fire and cannot reach the conflagration stage. If the losses from these individual fires are considered, however, the result is startling and even appalling. It is estimated that fires on farms in the United States take approximately 3,500 lives each year and destroy about \$100,000,000 worth of property. This is indeed a huge and needless waste of life and property—a challenge to all concerned with conserving agricultural wealth.

Causes of Farm Fires

Farm fires have numerous causes. Eight principal ones are: Defective chimneys and flues; sparks on combustible roofs; lightning;



This chimney will give many years of safe service.

spontaneous combustion; careless use of matches, smoking; careless use of gasoline and kerosene; defective and improperly installed stoves and furnaces; faulty wiring and misuse of electric appliances. Of the known causes, these eight are responsible for almost 85 percent of the total losses from farm fires.

Remove Fire Hazards

Construction and Care of Chimneys

Defective chimneys fall into two classes: (1) Those fundamentally wrong in construction, and (2) those that have become defective because of lack of care.

Chimneys should be built from the ground up or rest on foundation or basement walls of masonry. The walls should be constructed of brick, stone, reinforced concrete, or hollow units of clay or concrete. The minimum thickness of the walls should be 4 inches for brick, 4 inches for reinforced concrete, 8 inches for hollow tile, and 12 inches for stone. They should be lined with flue linings of fire clay or vitrified clay not less than three-fourths of an inch thick. Chimneys should be cleaned at least once a year.

A chimney that becomes too hot to hold one's hand against without discomfort should be carefully inspected and repaired by a reliable mason.

Use Fire-Resistant Roofing

The roofing of all main farm buildings should be chosen with careful consideration of the protective properties. Fire-resistant roof coverings should be used if possible. The most fire-resistant coverings are tile, slate, cement-asbestos shingles, and metal. Other roofings that afford satisfactory protection are heavyweight composition shingles and prepared roofings that have been tested and proved fire-resistant and durable. If wooden shingles are used, choose the best grade of edge-grain shingles and insist upon good workmanship in laying them.

Protect Against Lightning

Equip the principal farm buildings with properly installed and well-maintained lightning rods. Statistics show that such systems are practically 100-percent effective in preventing damage from lightning. A substantial metal roof, with all parts in good electrical contact and properly grounded, also affords good protection.

Protect livestock in pastures or yards by grounding wire fences about every 150 feet.

Guard Against Spontaneous Ignition of Hay

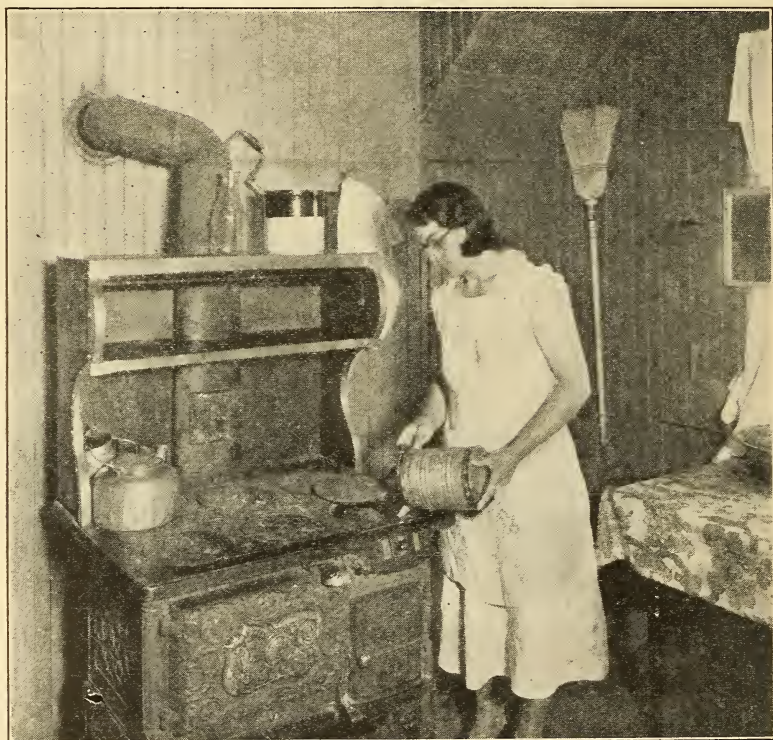
Thoroughly cure all hay. Undercured or damp hay when stored in large piles heats spontaneously. This heating may continue until the ignition temperature is reached and the hay bursts into flame. It is dangerous to store even small quantities of undercured hay, although most of the lot is well cured. If the proper curing of hay is impossible because of frequent rains, stack such hay in the field rather than place it in the mow. Even though a fire does not occur, heating destroys much of the feeding value of hay. Alfalfa, clover, and soy-bean hays are most likely to heat severely.

Guard against leaks in the roof of the barn. Even though hay has been well cured before storage, it will heat if it is wet by rain coming through a leaky roof or by floodwaters.

Frequent examinations should be made for several weeks after hay has been stored. "Steaming", strong irritating odors, and wet areas and flues are signs of dangerous heating. If these conditions continue, call upon the nearest fire department for help.

When hay is heating excessively, the entire lot should be removed from the barn, but first the heating areas should be thoroughly drenched with water. Make provisions for fighting a possible fire, as the hay may burst into flames when exposed to the air. Do not walk directly on the hay, especially at the center of the mow, as the interior may have charred and sunk. Avoid breathing gases from hot pockets and flues. Transport the hay to an open field; it may ignite later.

Although salt in liberal quantities may retard fermentation, there is no evidence that the addition of salt to hay as it is stored, at least in amounts safe for feeding, will prevent spontaneous ignition. Until this question can be definitely settled by further experimentation too much reliance should not be placed on salting as a safeguard against spontaneous ignition, and it should not be considered a substitute for sufficient curing of hay in the field.



A dangerous practice.

Use Care With Matches and in Smoking

A lighted match should be completely out before it is discarded; a good practice is to break it in two after the flame has been extinguished. The use of safety matches is recommended, because it lessens the possibility of accidental ignition and eliminates the carrying and loss of loose matches.

Keep matches away from children.

Do not permit smoking in barns or near combustible materials.

Handle Gasoline and Kerosene With Care

Gasoline has been called liquid dynamite because of the violent explosion which results when gasoline vapor mixed with air is ignited. Kerosene is not highly inflammable like gasoline, but when heated it gives off dangerous vapors that may be ignited with explosive violence.

Never use gasoline or kerosene to start or revive a fire. Do not use gasoline, benzene, or other inflammable liquids for cleaning at home. Never fill lamps, lanterns, stoves, or heaters while they are burning.



This home was wrecked when a woman tried to wash clothes with gasoline in a washing machine. She lost her life in the explosion.

In buildings gasoline should be kept in an approved safety can or sealed container, and the total quantity should not exceed 1 gallon. Large quantities of gasoline should be stored in substantially built drums at least 75 feet from the nearest building or in an approved underground tank at least 10 feet from the nearest building. The can and drums should be painted red and plainly marked **GASOLINE**. The drums and the tank should be equipped with an approved pump.

Small quantities of kerosene should be kept in closed cans of a size and shape different from that holding gasoline. This will lessen the chance of using gasoline by mistake, especially in the dark. Large quantities of kerosene should be stored in substantial drums or in an underground tank equipped with a pump.

Install and Operate Heating Equipment Properly

Heating equipment should be properly installed, operated, and maintained. Overheating is dangerous.

Boilers and furnaces should rest on incombustible foundations. The sides and back of a boiler or furnace should be at least 3 feet from woodwork or wood-lath and plaster partitions. The overhead clearance of boilers and furnaces should not be less than 15 inches, whatever the construction above may be. Any woodwork within 3 feet of the top of the boiler or furnace should be protected by a loose-fitting shield of metal or other incombustible material arranged to preserve an air space between the shield and the wood.

Wooden floors under stoves and ranges should be protected with two $\frac{1}{8}$ -inch layers of asbestos board covered with sheet metal. The sides and back of stoves and ranges should be at least 3 feet from woodwork or wood-lath and plaster partitions. If woodwork or partitions are covered with a metal shield or other incombustible material the distance from stoves and ranges should be at least 18 inches.



Hand extinguishers should be available for fighting a small fire.

Avoid long smoke pipes. The sections should be securely joined. Smoke pipes should be at least 18 inches from unprotected woodwork.

Smoke pipes from boilers of furnaces never should pass through a wooden partition. Smoke pipes from stoves and ranges should not pass through floors or closets, or enter a chimney in an attic. If they must pass through a wooden partition, the woodwork should be protected by inserting a galvanized-iron, double-walled ventilating thimble at least 12 inches larger in diameter than the smoke pipe or by surrounding the pipe with brickwork or other incombustible material.

Smoke pipes should be cleaned at least once a year.

Use Care With Electricity and Appliances

When the wiring is adequate and properly done, electricity becomes perhaps the safest source of light, heat, and power known to man.

Electric wiring should meet the requirements of the National Electrical Code. Have all wiring and repair work done by a competent electrical contractor.

Be careful not to overload circuits; use fuses of the correct amperage.

Use cords bearing the label of the Underwriters' Laboratories. Do not run them under rugs, in doorjams, or over radiators or steam pipes. Cords never should be used as a substitute for permanent and properly installed wiring.

Disconnect flatirons, curling irons, heating pads, or other appliances when they are not in use.

Dispose of Waste and Rubbish

Keep the premises free from litter and rubbish. Burn oily waste and rags or place them in closed metal containers. They may ignite spontaneously.

Do not pile horse manure in stables or against buildings. It may heat enough to cause a fire.



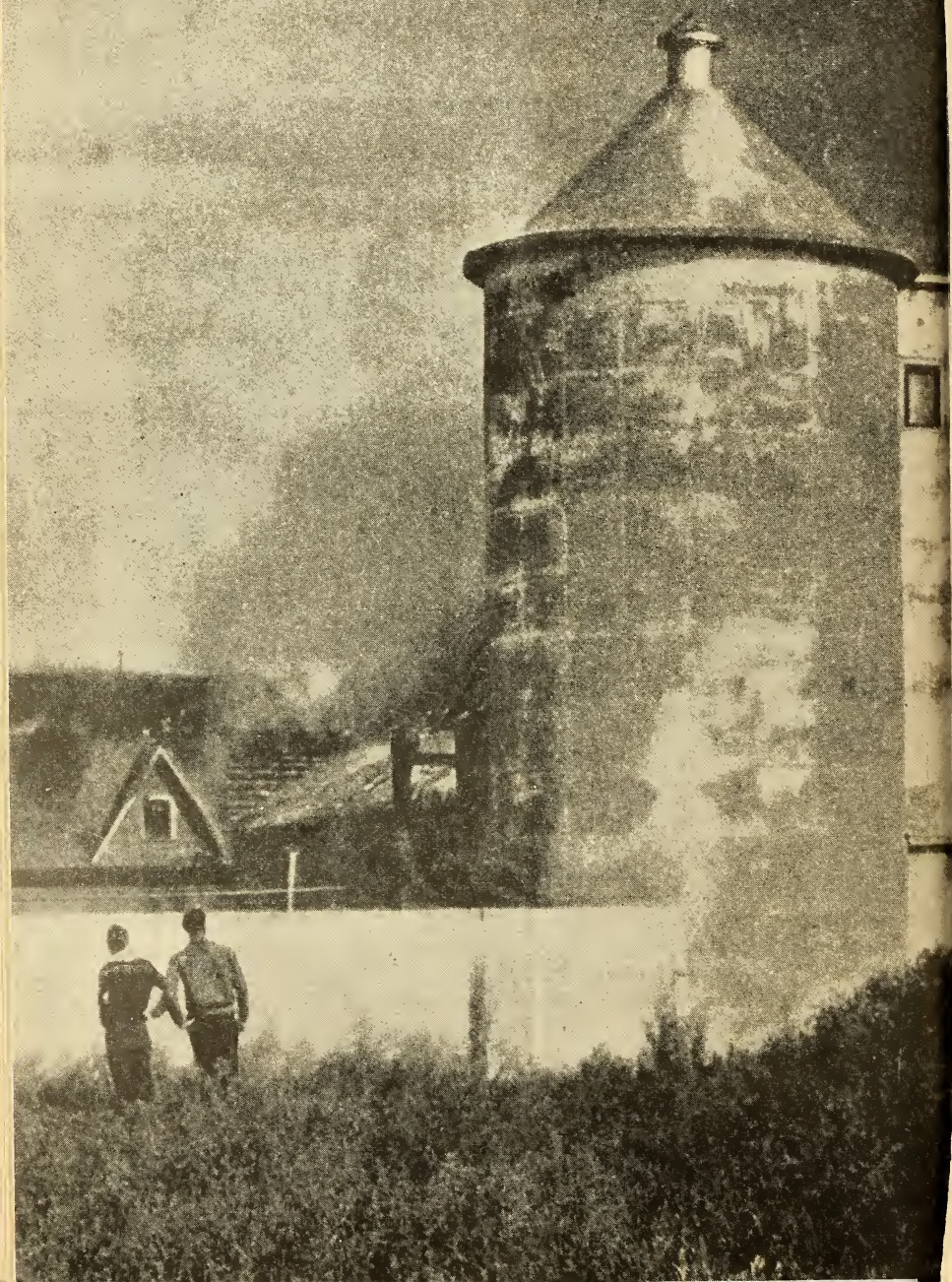
Motorized fire apparatus is the second line of defense in fire protection.

Provide Fire-Fighting Apparatus

Remove all possible fire hazards, but be prepared to fight a fire should it occur. Home fire-fighting equipment—chemical extinguishers, pump-tank extinguishers, fire pails or barrels of water, and ladders—should be available on every farm. Such equipment must be kept in a handy place ready for instant use. The ordinary water-pressure system is also effective on small fires.

As a second line of defense, rural communities should have adequate motorized fire apparatus and trained fire departments. Suitable fire alarms, good roads, and sufficient water supplies on farms will greatly increase their effectiveness.

The Department of Agriculture will, on request, gladly furnish information on safeguarding the farm against fire.



100163